ASSESSMENT OF STRATEGIC LAND USE OPTIONS FOR UGANDA

Phase I Draft Completion Report

APPENDIX D

Market Feasibility of Land Use Options in Uganda

Mylène Kherallah and Peter Gruhn

Markets and Structural Studies Division

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The International Food Policy Research Institute
2033 K Street, N.W. Washington, D.C. 20006

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1. Introduction

The objective of this report is two-pronged: 1) to assess the feasibility of the land use options suggested for Uganda in terms of the availability of marketing services that could facilitate the commercialization of agriculture and access of farmers to input markets; and 2) to identify the types of policy interventions and investments needed to improve the market conditions -- and therefore promote the feasibility -- of the land use options proposed. The importance of market services for the development of the agricultural sector, especially high-value cash crop production, cannot be overstated. Without access to competitive markets and availability of storage, transport, and communication infrastructure, farmers and traders cannot market their products effectively, and land use options that focus on the commercialization of crop production may not be feasible. On the other hand, intensification of food production which requires access to fertilizer and improved seed varieties may not be feasible if input markets are not functioning properly or if farmers do not have access to these markets.

While the general study uses "market access" (measured as the travel time from any location to the nearest three towns or cities, weighted by the population of the towns or cities) as one of the criteria for selecting the development pathways or land-use options, this criterion is not enough to determine the market feasibility of the options. To assess the options in terms of their market feasibility, we need to use empirical evidence on the availability and quality of marketing services in selected regions in Uganda. Characterizing regions in terms of market services adds a richer dimension to the process of identifying appropriate development and investment strategies in the selected regions.

This report focuses on 3 main characteristics of the market: market competition, volume of marketed products, and status of market infrastructure (storage, transport, credit, communication and market information services). More competitive markets imply lower marketing costs, better prices for farmers and consumers, and more efficient market services. Higher volumes traded reduce market thinness, result in better coordination and more fluid market activities, and reduce unit marketing costs because of economies of scale. Transport, storage, and communication networks are essential for farmer and traders to conduct their marketing activities effectively. Access to credit institutions and market information services are also important, especially for large-scale traders -- such as wholesalers and importers/exporters – that typically require large working capital and timely information about external markets.

2. Research Methodology

The study uses the results of a survey of both input and output traders in Uganda conducted by IFPRI in 2000-2001. The output trader sample includes four types of commodity traders: coffee, cotton, cassava, and maize traders. These commodities were selected because of their importance in the agricultural economy of Uganda and their potential for further growth and expansion. Commodity traders are all wholesalers and are classified into: exporters, Kampala traders, main town traders, primary fixed location traders, and itinerant traders. For this study, itinerant traders were excluded. The sample is composed of 352 traders, of which 105 were itinerant traders. Therefore, the sample used for this study is composed of 247 traders. The districts covered are located in three of the four regions of the country (Central, East and North) and include:

Apac, Lira, Masindi in the North;

Busia, Iganda, Jinja, Kamuli, Mbale, Pallisa,Tororo in the East; and

Kampala, Luwero, Masaka, Mpigi, Mukono in the Centre.

The districts were chosen based mainly on production, marketing locations, and security considerations. The sample of traders was randomly drawn and should be representative of the trader population in the regions covered. The survey was launched in September 2000 and completed in February/March 2001.

The input traders sample includes traders of fertilizer, seeds, agrochemicals, and agricultural tools and equipment. Based on information from various NGOs, there are about 500-600 seed, fertilizer and agro-chemical traders in Uganda. The total sample size in the IFPRI study includes 148 input traders located across the Northern, Central, Eastern and Western regions. The sample includes nearly all of the seed, fertilizer, and agro-chemical importers and wholesalers in the country, as well as a random sample of stockists (retailers) from the following districts:

Kampala, Mpigi, Luwero, Mukono in the Centre;

Mbarara, Kasese, Masaka, Rakai in the West;

Tororo, Busia, Iganga, Kamuli, Mbale in the East;

Lira, Apac, Masindi, Soroti in the North.

The Central region had the largest sample size (85 traders) because the majority of input traders are located in this region. For input traders outside of Kampala, the selection was based on two steps. In the first step, 17 representative districts were selected. In the second step, up to 10 stockists were randomly selected in each district. The selection of 17 districts was based partly on random sampling, partly on preserving regional balance, and partly on the number of input traders and security considerations in each region.

The output traders questionnaire covers a wide variety of topics. For the purpose of this study, however, we focus on the 3 main characteristics of the market: competition, volume traded, and infrastructure. These are measured as follows:

- market competition: measured by the number of purchasing and sales competitors in the markets where traders operate;

- volumes traded by commodity: measured as the total volume traded by the average trader;
- infrastructure:
    - transport: measured by extent of use of transport services, the distance transported for each product, the type of transport used, whether it is owned or rented, the types of problems traders face with transporters, and the types of restrictions traders face in the movement of their goods;
    - communication and access to information: measured by the extent of use and access to telephones, faxes, computers, email connections, radios, newspaper, and other media to access market information;
    - storage facilities: extent of use of storage facilities, type and capacity of storage facilities used, availability of sufficient storage facilities;
    - credit use: extent of credit use and ability to borrow, sources of credit, and average amounts borrowed.

From the input trader survey, we will primarily focus on the availability of various agricultural inputs by region. Therefore, we only report information on the average volume sold and prices of the main inputs traded in each region.

3. Results from the Output Traders Survey

3.1 Market Competition

In this section, we report the results on market competition. The results in Table 3.1 show that market competition, as measured by the average number of purchasing and selling competitors per trader, is more prevalent in the Central and Eastern regions than in the Northern region. The average number of purchasing competitors is about 90 to 100 for traders in the Central and Eastern regions, while it is only 24 for traders in the Northern region. This indicates that farmers in the North may have a smaller choice of traders to whom they can sell. In certain areas, especially remote ones, traders may be able to exert market power and purchase from farmers at lower prices than the market.

The districts with the highest level of purchase competition are Kampala in the Center, and Jinja and Mbale in the East. Tororo, Busia, and Iganga also have fairly competitive markets. The districts with the smallest number of purchasing traders are Masindi in the North and Mpigi in the Center.

On the sales side, the Eastern region shows the largest number of competing traders per district. Once again, the Northern region exhibits the lowest level of market competition among sales traders. However, the number of sales competitors in the North is more than twice the number of purchasing competitors. Therefore, there seems to be more market concentration in purchasing from farmers than selling to other traders or consumers in this area. In general, the districts with the highest level of competition among sales traders are also the ones with the highest level of competition among purchasing traders; i.e. Jinja, Kampala, Mbale, Iganga and Tororo. Lira in the North has a higher level of sales than purchasing competitors and shows the highest level of competition in the Northern region; Masindi, on the other hand, shows the smallest number of sales competitors.

These results suggest that areas with greater market competition are those close to the border with Kenya and in the capital city of Kampala. These areas tend to have higher population density, better access to major markets and trade routes, and more developed transport infrastructure. Therefore, they would be more suitable for intensification of commercialized agriculture (such as perishable cash-crop production). While the Northern region may be suitable for extensification of cash crop production, one limiting factor is low market competition.

3.2 Volumes Traded

Average volumes purchased and sold by commodity trader are calculated in Tables 3.2.1 and 3.2.2. The figures suggest that volumes traded are much larger for Kampala traders, especially for coffee and cotton. For food crops, volumes of maize purchased and sold are larger than for cassava. Cassava markets seem to be thin in the Northern region. Volumes traded seem to follow the production potential of the region.

For example, cassava markets are larger in the Eastern region where most cassava is grown; coffee trade is more active in the Central (and Western) regions where coffee is grown; and cotton is more commonly traded in the Eastern and Northern regions where it is more widely grown. Maize, on the other hand, is grown and traded through-out the country. In general, the districts with the largest volumes traded are Kampala, Mbale, Iganga, Jinja, and Tororo (the last three are on the trade route with Kenya). This is expected given their level of infrastructure development and population density.

Table 3.2.3 shows the average distances traveled to purchase and sales markets based on the fixed location of the trader. Kampala traders seem to purchase their commodities from longer distances than other regional traders. This is expected since Kampala is not a major production area and traders have to procure their goods from other agricultural regions. Kampala is also a major node through which many export and inter-regionally traded commodities flow. Similarly, Jinja, Tororo, Busia and Mbale are important centers where commodities are assembled and shipped by road and/or rail towards Kenya (Nairobi or Mombassa) for re-export to Europe, Asia, or other African countries. On the other hand, traders in the Northern region and small fixed location or main town traders through-out Uganda seem to purchase mainly from their local markets and sell in markets that are further away. The average distance to a sale market for Northern traders is about 90 kms, more than twice as far for traders in the Central region and 30 percent further then for traders in the Eastern region. Given that the Central and Eastern regions have large consumption markets and that coffee and cotton are usually shipped for export through collection centers such as Kampala, Jinja, Tororo, Busia and Mbale, these results are expected.

3.3 Infrastructure

The availability and quality of market infrastructure are analyzed by examining the output traders' response to questions regarding their use of transport, storage, communication, information, and credit services. The results are as follows.

Transport. Overall, over 80 percent of output traders in Uganda use some means of transport to transport their commodities either from their purchase markets, or to their sale markets, or both. The most common means of transport is hired transport (72 % of all traders). Only about 20 percent of traders own the transport vehicles used to move their commodities. About 17 percent of all traders do not use any means of transport -- either because the commodity is delivered to their place of sale, or customers may pick up from the trader location, or because the trader does not handle the transport of the commodity, rather the commodity is transferred directly from the primary seller to the final buyer or exporter. The break-down by region and districts shown in Table 3.3.1 suggests that the extent of non-use of transport is more common in the Northern region (22 percent of traders there did not use any transport), mainly because in Apac over one-third of the traders do not use any means of transport. In the Eastern region, traders in Busia have limited need for transport as they largely organize the collection of the various commodities and transfer it to trucks supplied by other traders or exporters for shipment to Kenya. Exporters typically transfer the commodity from the wholesalers/assemblers directly to export markets. Consequently, they rarely need to transport the commodity to the location of their business. In the rest of the districts, use of transport is common for the majority of the traders.

Traders were asked whether they faced transport restrictions (see results in Table 3.3.2). About one-quarter of the traders in the Eastern region reported that they did face transport restrictions, probably because of trading with Kenya where police and customs patrols are more frequent. The districts where traders reported most transport restrictions are Mbale and Iganga. For the other regions and districts, the percentage of traders that reported transport restrictions were less than 12%. Most restrictions were imposed by the police.

Almost one-third of the traders reported that they had problems with transport services. As shown in Table 3.3.4, these problems were most common in the Eastern followed by the Northern region. In the North, the most significant problems with transport are related to cheating on transport costs and bad road. For the other regions, the problems were evenly split between delivery problems, poor road infrastructure, theft (more in the Eastern part) and cheating on transport costs (the latter is lowest in the Central region). It is noteworthy that Jinja had quite a few problems with theft and that Luwero in the Central region and Lira and Masindi in the Northern region had the most problems with poor road infrastructure. This calls for measure to curb theft in the Eastern region and improve road infrastructure in the North to promote agricultural trade.

Communication. In general, traders rely either on other traders or their regular customers to obtain information on prices in their sales markets. However, as shown in Table 3.4, it is quite clear that traders in the Northern region rely more on their customers, while traders in the Eastern and Central region rely more on other traders for price information. This may suggest that trader networks and social capital are more prevalent in the latter two regions. Traders in the Northern region have less access to information than their counterparts in the other regions and have to rely more on their customers to obtain timely market information.

In terms of use of tele-communication equipment, Tables 3.3.5 and 3.3.6 demonstrate that the Central region (especially Kampala) is the most advanced region in terms of use of mobile telephones, faxes, computers, and emails. Most traders have access to a telephone even if they do not use or own one, except in the Northern region where less than a quarter of the traders have access to a telephone. Apac seems to be the worst off in terms of use or access to a telephone. Use of computers and emails is still quite rare except for Kampala. Use of radio to obtain market price information is widespread in all regions, followed by newspapers.

Storage. Another important facility for traders is storage space. As shown in Table 3.3.7, most traders use storage facilities to store their products. However, between 20 and 25 percent of traders report that they do not have enough storage space. Storage space is particularly insufficient for traders in Kamuli and Lira. As expected, the largest storage capacities are found in the Center, especially Kampala, despite the fact that price of storage is expensive because of the high value of real estate in Kampala city. Storage capacities are generally large in the North where the collection of agricultural commodities is less frequent, and in the main transport node centers in the East (Busia, Tororo, and Mbale).

Credit. Use of credit is limited to about 50 percent of the traders (see Table 3.3.8). However, between 55 percent and 100 percent of traders would be able to borrow additional funds if needed. Traders in Kampala, Kamuli, Mbale, Pallisa, Tororo and Lira seem more likely to use credit (over 60 percent), but in Kampala, only 55 percent of the traders reported that they could borrow additional funds if needed. Perhaps these traders are at the maximum limit of their borrowing capacity. None of the traders in Masindi use any credit and only 64 percent of traders could borrow additional funds if needed. This could imply that credit facilities in Masindi are lacking. Traders usually use credit to finance their purchases. Average interest rates are about 3 percent per month with the highest rates charge by commercial banks and other unspecified lenders (such as money-lenders). These rates do not vary much by region.

The results in Table 3.3.9 indicate that the use of formal and informal sources of credit varies significantly by district. For traders in Kampala, where formal credit institutions are more available, use of banks is more likely than in any other district. In Kampala, for example, more than 50 percent of traders use banks to obtain loans. For the Eastern region, other traders, family and friends, and other credit institutions are more important sources of credit than banks. In the North, other traders are the main source of credit for traders in the Lira district, but for traders in Apac, , other credit institutions (such as NGOs) are more important.

In Table 3.3.10, we asked the traders about the types of credit sources available to them if they wanted to borrow additional funds. This could reflect partially the availability of different sources of credit in each region and district. Additional borrowing seems to be more available from banks in the Eastern and Northern region. This could indicate that the low level of credit use in these regions is constrained by demand (mainly because of high interest rates) rather than supply of credit services. Despite the fact that Kampala has the largest supply of credit facilities and banks, traders there do not feel they could borrow further from these institutions, most likely because of their credit limit and existing outstanding loans.

4. Results from the Input Traders Survey

Table 4.1 shows the distribution of the sampled input traders. All importers are located in Kampala. Kampala also holds the largest number and percentage of wholesalers and stockists (retailers). The Eastern region has the second largest number of traders (28 out of 148). Both the Northern and Western region have a very low percentage of wholesalers (between 5 and 7 percent of traders in that region).

In Table 4.2, we show the percentage of traders that trade each type of input. The figures indicate that in most cases, all traders market seeds, fertilizer and agro-chemicals. About 50 percent of the traders also trade in agricultural equipment. The traders with the largest range of products are those located in the Central and Eastern region, followed by the Western region. In the North, however, especially in Apac, the percentage of traders that market fertilizer and agro-chemicals is lower than in any other district. In terms of quantities traded, the figures in Table 4.3 indicate that Kampala traders trade the largest quantities of seeds and fertilizers. This is expected since all importers are located in Kampala and importers usually purchase and sell on a large-scale. In the Center, Masaka and Rakai traders also handle relatively large quantities of inputs. The Northern and Western regions show the smallest volumes of inputs traded per trader. This distribution indicates that in the Central and Eastern regions, inputs markets are less thin than in the Northern and Western regions. These findings suggest that any land-use options that focus on intensifying use of inputs in the latter two regions would have to involve complementary measures to further develop input markets in these two regions.

5. Mapping the Marketing Characteristics with the Land-Use Strategies

The objective of this section is to determine the market feasibility of the land-use strategies by comparing the potential extensification and intensification land-use strategies with some of the market survey variables described earlier. To do so, we compare GIS maps representing the land-use strategies with GIS maps representing market survey variables related to competition (number of purchase and sales competitors) and infrastructure (extent of use of transport, storage, communication, and credit infrastructure). Comparisons of the land use and marketing maps leads to the following findings:

Land Use Strategies

Map 5.1 summarizes various agriculture based land use strategies. As shown in Map 5.1, the primary areas for agricultural intensification are located in South-Western Uganda, and in a widening band of 50 to 100 km around Lake Victoria from the Tanzanian border to the Kenyan border, respectively (the Lake Victoria band). The primary areas for extensification, by contrast, are located in a band starting from the shore of Lake Albert and heading eastward to encompass the Lake Kyoga basin (the Lake Albert - Kyoga band). For the purposes of this study, we will concentrate on market and infrastructure related factors that could help promote the extensifictaion and intensification of annual and perennial cash crops in these areas.

Competition

Map 5.2 provides an indication of the number of trader competitors when purchasing and selling their various commodities. As shown in Map 5.2, the number of purchase and sale competitors in the Lake Albert - Kyoga band is low. Also, as previously mentioned, there appear to be less competition in purchasing from farmers than from selling to other traders and consumers in this band. Although competition tends to be higher along the Lake Victoria band, competition tends to become less vigorous as one moves away from the main commercial, and population centers of Kampala, Mukono, Jinja, Tororo, Busia, and Masaka. Therefore, a strategy of extensifying or intensifying cash crop production in these two bands may not be feasible if trader entry in these areas remain limited, particularly in such districts as Masindi, northern Luwero, Apac, and Lira, and to a lesser extent in such central and eastern districts as Mpigi, and less accessible parts of Kamuli, Iganga, and Mbale.

Infrastructure

Transport. As one would expect most traders use some type of transportation in the buying and selling of their products. Trucks are the predominant type of transportation used by traders. Overall, 52 percent of traders use trucks to move their commodities. As shown in Map 5.3, truck transport is used least commonly in Masaka, and Mbale in central Uganda, in Kamuli, Pallisa, and Mbale in eastern Uganda, and away from the primary highway routes in the Lake Albert - Kyogu band. If goods move at all to markets in these more remote areas, traders are forced to use other less efficient forms of transport such as motorbikes, bicycles, wheelbarrows, or by walking. Map 5.4 further illustrates the areas where traders have difficulty transporting goods. Traders in the Lake Albert - Kyogu band chiefly site poor infrastructure as their principal transport related problem, while to the east and in Masaka, traders site delays in delivery caused by such factors as periodic road impassability and seasonal transport bottlenecks. Although restrictions on the transport of goods are low, the relatively high incidence of theft in these areas of eastern Uganda may in part explain the increased number of road inspections in these districts as police undertake efforts to deal with the theft problems. A strategy to promote cash cropping in the extensification and intensification bands, will need to include measures to enhance and improve the quality of the road, rail, and air freight networks. In addition, measures to improve the effectiveness and efficiency of the transport system through Kenya and Tanzania to sea ports, and to improve access to other regional markets would help to make Ugandan goods more competitive and help to get the products to market more quickly.

Communication. As described previously, only 29 percent of traders have a telephone. Although telephone infrastructure exists along the Lake Victoria belt, access to telephones is relatively limited or nonexistent in the intensification areas of Kamuli, Pallisa, and Mbale, and the Lake Albert - Kyogo agriculture extensification band (see Map 5.5). Telephone ownership is mainly limited to in and around the main population, commercial, and transport centers and nodes, such as Kampala, Busia, Mbale, Tororo, Masaka, and Mukono. Despite the relatively low use of telephones and other communication means, the introduction of mobile phone communication infrastructure has played an important role in expanding telephone usage into new areas and in improving and extending access in already covered areas (see Map 5.5). Given the dominance of face to face communication, the low access and use of telephones, and the limited availability and use of other communication technologies, trader entry into cash crop extensification and intensification areas will be restrained without better access to local, domestic, regional, and export price and market information, and improvements in communication infrastructure.

Storage. Overall, about 90 percent of commodity traders use storage. However, with the exception of traders in Kampala and in a few areas of the Lake Albert - Kyoga band, most traders have very little storage capacity (see Map 5.6). Fortunately, over 81 percent have enough storage capacity for their current trading needs. Of those that could use more storage, over 90 percent have not acquired additional storage space because of the high cost of building new facilities. If extensification and intensification of agricultural production occurs in these regions as hoped, then demand by traders for access to additional storage facilities will quickly increase.

Credit. Only about 50 percent of commodity traders use credit, of which nearly all is used to purchase product from farmers and assemblers. As shown in Map 5.7, credit use tends to be higher in the northern districts of Apac and Lira, around Kampala, and in the eastern districts of Palisa, Kamuli, and Mbale. In these survey areas, the credit is mainly used to purchase coffee and maize (Kampala), and to purchase raw cotton for processing and maize (the other districts), of which most is slated for subsequent export sales to the East through Kenya. Most loans come from other traders, formal credit sources, and friends and family. In particular, about two-thirds of the bank loans, and nearly 50 percent of NGO loans went to cotton traders. If needed, most traders could borrow additional funds from family and friends and from formal sources such as banks and NGOs. Additional loans from banks are most readily available to traders in the Kampala area, and to cotton traders in northern and eastern Uganda. As many of the

NGOs activities are primarily focused on more remote areas such as in northern Uganda, traders tend to have better access to NGO based loans in these places. Analysis of the commodity trader data would suggest that, whereas traders around Kampala and a few other major markets and traders of export products such as cotton and maize have generally better access to credit, use and access to credit for trading activities is generally low. Use of collateral, particularly the traded product, is also low. For traders to expand and deepen their activities, additional measures will be needed to improve trader access to lending institutions throughout Uganda. A review of the performance of existing warehouse receipt systems should also be undertaken, and if successful, assistance may be warranted to facilitate and widen the availability and use of this type of system.

6. Conclusions

The availability of marketing services will play an important role in the development of agricultural potential in the Lake Albert - Kyoga extensification band and the Lake Victoria intensification band. A number of interventions and investments may be warranted to improve market conditions and therefore improve the feasibility of the land use development options proposed for these areas.

Competition between traders is generally low in the Lake Albert - Kyoga band and in remote areas of the Lake Victoria band. These areas are also underdeveloped in terms of agricultural commercialization, transport and communication infrastructure, and access to agricultural inputs. Given the relatively high level of competition in areas where markets and infrastructure are in place and the higher level of competition and commercialization outside of these areas where infrastructure improvements have recently been made, traders are likely to respond positively to marketing opportunities as more remote and underdeveloped areas open up with improvements in infrastructure.

The volumes traded and the storage capacities of traders in Uganda are generally small. Although storage capacity appears to be largely sufficient for current trading needs, a substantial increase in the volume traded could quickly overwhelm the existing storage facilities currently available to traders. Given the cost of building additional storage space, the lack of storage in the near future could become a serious constraint to the accumulation and profitable trading of product over space and time.

Infrastructure in Uganda needs improvement. For commercial activities to expand in the Lake Albert - Kyoga extensification band and in the Lake Victoria intensification band, substantial improvements in transport and communication infrastructure will be necessary to better link remote areas to markets, particularly for export trade. Timely information on marketing opportunities needs to reach remote areas more effectively, and the cash crops produced in these areas need to be able to more quickly and efficiently reach local, domestic, regional and foreign markets, particularly for highly perishable fruits and vegetables.

Table 3.1 – Average number of purchase and sales competitor per trader

Region and District	Average number of purchase competitors	Average number of sales competitors
Central		
Kampala	149	109
Luwero	78	56
Masaka	47	56
Mpigi	18	57
Mukono	75	44
Av. Central region	98	77
Eastern		
Busia	80	50
Iganga	78	145
Jinja	235	193
Kamuli	50	31
Mbale	100	102
Pallisa	70	63
Tororo	90	130
Av. Eastern region	95	105
Northern		
Apac	20	36
Lira	33	119
Masindi	16	9
Av. Northern region	24	64

Table 3.2.1 – Average volume purchased by product trader (in metric tons)

Region and district	Maize	Cassava	Coffee	Cotton
Central				
Kampala	1673	243	203907	6504
Luwero	50		66	
Masaka	32.5	53.5	529	
Mpigi	180		192	
Mukono	35.5	119	113	
Av. Central region	**1134**	**192**	**47245**	**6504**
Eastern				
Busia	430			
Iganga	200	562	44	
Jinja	156	219	95	
Kamuli	20	84		217
Mbale	412	104	1062	333
Pallisa	60	90		149
Tororo	349	261		240
Av. Eastern region	**210**	**255**	**563**	**208**
Northern				
Apac	131	66		157
Lira	151	82		257.5
Masindi	174.5	70.3		
Av. Northern region	**156**	**72**		**199**

Table 3.2.2 – Total volume sold by the average product trader (in metric tons)

Region and District	Maize	Cassava	Coffee	Cotton
Central				
Kampala	1518.2	237.9	10596.8	6175
Luwero	47.5		65.3	
Masaka	27.5	50.3	473	
Mpigi	120		168	
Mukono	29	116	93	
Av. Central region	**1027**	**187**	**2470**	**6175**
Eastern				
Busia	421			
Iganga	194	543	35	
Jinja	168.5	203	92	
Kamuli	19	82		217
Mbale	387	102	443	333
Pallisa	60	88.5		168
Tororo	324	238		216
Av. Eastern region	**202**	**244**	**229.1**	**212**
Northern				
Apac	127	65		156
Lira	150	79		228
Masindi	174	62		
Av. Northern region	**155**	**69**		**186**

Table 3.2.3 – Average distance to purchase or sales market (in kilometers)

Region and district	Av. Distance to purchase market	Av. Distance to sale market
Central		
Kampala	215.4	50.4
Luwero	19.7	18
Masaka	39.3	63.7
Mpigi	13.2	22
Mukono	40.1	17
Av. Central region	**110**	**38.8**
Eastern		
Busia	373.6	1.2
Iganga	47.8	116.9
Jinja	89.7	104.8
Kamuli	25.1	34.7
Mbale	56.3	58.7
Pallisa	54.7	40.2
Tororo	55.8	28.5
Av. Eastern region	**58.1**	**60.1**
Northern		
Apac	20.6	84.5
Lira	20.6	90.6
Masindi	16.9	114.5
Av. Northern region	**20.0**	**91.7**

Table 3.3.1 - Use of Transport

Region and District	Did not use transport	Used own vehicles	Hired transport	Used both own and hired transport	Other	Total
Central						
Kampala	36.36	6.82	38.64	18.18	0	100
Luwero	0	28.57	57.14	14.29	0	100
Masaka	0	0	80	20	0	100
Mpigi	18.18	27.27	36.36	18.18	0	100
Mukono	0	10	75	15	0	100
Av. Central region	**18.56**	**10.31**	**53.61**	**17.53**	**0**	**100**
Eastern						
Busia	100	0	0	0	0	100
Iganga	0	6.25	87.5	6.25	0	100
Jinja	25	12.5	50	12.5	0	100
Kamuli	9.09	18.18	63.64	9.09	0	100
Mbale	15.79	10.53	63.16	10.53	0	100
Pallisa	12.5	6.25	62.5	6.25	6.25	100
Tororo	0	0	81.82	18.18	0	100
Av. Eastern region	**12.05**	**8.43**	**67.47**	**9.64**	**1.20**	**100**
Western						
Apac	35.48	3.23	54.84	3.23	3.23	100
Lira	12	8	64	8	8	100
Masindi	9.09	9.09	63.64	18.18	0	100
Av. Western region	**22.39**	**5.97**	**59.7**	**7.46**	**4.48**	**100**

Table 3.3.2 - Transport Restrictions

Region and district	Percentage of traders that reported transport restrictions
Central	
Kampala	11.4
Luwero	14.3
Masaka	6.7
Mpigi	9.1
Mukono	5
Av. Central region	**9.3**
Eastern	
Busia	0
Iganga	31.2
Jinja	25
Kamuli	18.2
Mbale	36.8
Pallisa	12.5
Tororo	18.2
Av. Eastern region	**24.1**
Northern	
Apac	9.7
Lira	12
Masindi	9.1
Av. Northern region	**10.4**

Table 3.3.3 - Main problems with transport

Central

Region and district	Percentage of traders reporting transport problems	Percentage of traders reporting delivery problems	Percentage of traders reporting poor road infrastructure	Percentage of traders reporting problems with theft	Percentage of traders reporting problems with cheating on transport costs
Kampala	27.3	6.8	4.5	9.1	0
Luwero	42.9	0	28.6	14.3	0
Masaka	33.3	6.7	0	6.7	6.7
Mpigi	0	0	0	0	0
Mukono	15	5	10	0	0
Av. Central region	23.7	5.2	6.2	6.2	1
Eastern					
Busia	0	0	0	0	0
Iganga	50	12.5	12.5	12.5	12.5
Jinja	50	12.5	12.5	37.5	12.5
Kamuli	36.4	18.2	0	0	0
Mbale	31.6	10.5	15.8	5.3	15.8
Pallisa	37.5	0	0	18.8	6.2
Tororo	36.4	0	9.1	9.1	9.1
Av. Eastern region	38.6	8.4	8.4	12	9.6
Northern					
Apac	29	12.9	6.5	6.5	16.1
Lira	40	8	28	0	24
Masindi	27.3	9.1	18.2	0	18.2
Av. Northern region	32.8	10.4	16.4	3	19.4

Table 3.3.4 - Main source of information on the price of the day in the main sales market

Region and district	Percentage of traders reporting regular customers	Percentage of traders reporting other traders
Central		
Kampala	11.4	43.2
Luwero	28.6	57.1
Masaka	33.3	60
Mpigi	54.5	36.4
Mukono	35	60
Av. Central region	**25.8**	**49.5**
Eastern		
Busia	0	100
Iganga	18.8	43.8
Jinja	12.5	87.5
Kamuli	27.3	54.5
Mbale	36.8	42.1
Pallisa	31.2	50
Tororo	27.3	45.5
Av. Eastern region	**26.5**	**51.8**
Northern		
Apac	51.6	25.8
Lira	64	20
Masindi	54.5	36.4
Av. Northern region	**56.7**	**25.4**

Table 3.3.5 - Use of telecommunication tools

Region and district	**Percentage of traders that use a telephone**	**% of traders that have a mobile phone**	**% of traders that use a ground line phone**	**% of traders that have access to a phone**	**% of traders that have a fax**
Central					
Kampala	97.7	77.3	61.4	87.5	40.9
Luwero	71.4	14.3	14.3	66.7	0
Masaka	93.3	33.3	0	90	6.7
Mpigi	81.8	9.1	0	80	0
Mukono	95	20	5	93.3	0
Av. Central region	92.8	46.4	29.9	85.7	19.6
Eastern					
Busia	100	100	0	0	
Iganga	93.8	12.5	12.5	100	0
Jinja	100	12.5	0	100	0
Kamuli	72.7	0	0	72.7	0
Mbale	78.9	31.6	26.3	63.6	5.6
Pallisa	43.8	12.5	0	35.7	0
Tororo	63.6	18.2	27.3	57.1	0
Av. Eastern region	74.7	18.1	12	68.9	1.2
Northern					
Apac	12.9	0	0	13.8	0
Lira	32	8	4	26.1	8
Masindi	36.4	9.1	0	37.5	0
Av. Northern region	23.9	4.5	1.5	21.7	3

Table 3.3.6 - Use of computers, emails, and access to price information

Region and district	% of traders that have a computer	% of traders that have email	% of traders that have a radio	% of traders that have access to a radio for price information	% of traders that have access to a newspaper for price information
Central					
Kampala	43.2	45.5	95.5	88.6	93.2
Luwero	0	14.3	100	85.7	85.7
Masaka	0	0	100	86.7	80
Mpigi	0	0	100	100	81.8
Mukono	0	0	100	94.7	73.7
Av. Central region	**19.6**	**21.6**	**97.9**	**90.5**	**85.4**
Eastern					
Busia	0	0	100	50	50
Iganga	0	0	93.8	86.7	62.5
Jinja	0	0	100	85.7	87.5
Kamuli	0	0	100	90.9	72.7
Mbale	5.3	5.3	100	94.7	73.7
Pallisa	0	0	100	86.7	73.3
Tororo	9.1	9.1	100	90.9	100
Av. Eastern region	**2.4**	**2.4**	**98.8**	**88.8**	**75.6**
Northern					
Apac	0	0	100	93.5	71
Lira	8	8	100	92	80
Masindi	0	0	100	81.8	100
Av. Northern region	**3**	**3**	**100**	**91**	**79.1**

Table 3.3.7 - Use of Storage facilities

Region and district	% of traders that use storage facilities	% of traders that reported sufficient storage facilities	Average storage capacity per trader in mt	Average storage rental period in months	Average price of storage Ush/mt/month
Central					
Kampala	97.7	81	5741	8.2	2732.1
Luwero	100	100	13	8.2	1064.5
Masaka	93.3	85.7	17.3	8.7	390.8
Mpigi	100	90.9	6.3	9.3	879.6
Mukono	90	83.3	28.2	9.9	285.6
Av. Central region	**95.9**	**84.8**	**2880**	**8.7**	**1584.7**
Eastern					
Busia	100	100	350	12	24.3
Iganga	93.8	92.9	26.2	9.9	245.9
Jinja	100	100	58	9.8	272.9
Kamuli	90.9	60	5	12	1448.7
Mbale	89.5	82.4	78.1	8.5	6124.9
Pallisa	100	81.2	17	10.5	193.3
Tororo	100	72.7	73.2	6.2	471.1
Av. Eastern region	**95.2**	**82.1**	**65.7**	**8.6**	**1562.5**
Northern					
Apac	100	80.6	491.8	6	502.1
Lira	100	64	26	6.2	1116.5
Masindi	90.9	100	278.6	8.8	1784.1
Av. Northern region	**98.5**	**77.3**	**276.9**	**6.3**	**853.9**

Table 3.3.8 - Extent of use of credit and ability to borrow additional funds

Region and district	% of traders that use credit	% of traders who could borrow additional funds if needed
Central		
Kampala	58.5	55
Luwero	42.9	85.7
Masaka	40	57.1
Mpigi	27.3	72.7
Mukono	55	78.9
Av. Central region	**50**	**64.8**
Eastern		
Busia	50	100
Iganga	37.5	75
Jinja	37.5	75
Kamuli	63.6	90.9
Mbale	63.2	78.9
Pallisa	68.8	75
Tororo	45.5	81.8
Av. Eastern region	**54.2**	**79.5**
Northern		
Apac	51.6	100
Lira	66.7	96
Masindi	0	63.6
Av. Northern region	**48.5**	**92.5**

Table 3.3.9 - Source of credit loans

Region and District	Other Traders	Friends and relatives	Banks	Other credit institutions	Processors/ buyers/ customers	Other	Total
Central							
Kampala	0	13.04	56.52	21.74	8.7	0	100
Luwero	66.67	33.33	0	0	0	0	100
Masaka	12.5	37.5	12.5	25	0	12.5	100
Mpigi	33.33	33.33	33.33	0	0	0	100
Mukono	61.54	30.77	7.69	0	0	0	100
Av. Central region	**26.42**	**24.53**	**30.19**	**13.21**	**3.77**	**1.89**	**100**
Eastern							
Busia	0	0	0	0	0	100	100
Iganga	33.33	33.33	16.67	16.67	0	0	100
Jinja	0	33.33	0	66.67	0	0	100
Kamuli	50	37.5	0	12.5	0	0	100
Mbale	28.57	21.43	21.43	7.14	14.29	7.14	100
Pallisa	41.67	8.33	8.33	16.67	25	0	100
Tororo	0	60	0	40	0	0	100
Av. Eastern region	**30.61**	**26.53**	**10.2**	**18.37**	**10.2**	**4.08**	**100**
Northern							
Apac	25	5	20	45	5	0	100
Lira	67.65	2.94	11.76	14.71	2.94	0	100
Av. Northern region	**55.56**	**3.7**	**24.07**	**12.96**	**3.7**	**0**	**100**

Table 3.3.10 - Availability of credit sources for additional borrowing

Region and District	% of traders than can get it from Friends and family	from Money-lenders	from Informal savings & loan assoc.	from NGOs	from Banks	from Processors/ buyers/ customers
Central						
Kampala	9.1	2.3	4.5	13.6	20.5	0
Luwero	71.4	42.9	28.6	42.9	14.3	28.6
Masaka	26.7	13.3	0	6.7	20	6.7
Mpigi	45.5	9.1	9.1	18.2	36.4	0
Mukono	50	25	20	20	25	20
Av. Central region	**28.9**	**12.4**	**9.3**	**16.5**	**22.7**	**7.2**
Eastern						
Busia	0	0	0	0	100	0
Iganga	37.5	6.2	6.2	31.2	12.5	6.2
Jinja	12.5	12.5	25	12.5	12.5	0
Kamuli	27.3	0	0	18.2	45.5	9.1
Mbale	21.1	15.8	15.8	21.1	52.6	10.5
Pallisa	31.2	6.2	18.8	25	31.2	6.2
Tororo	18.2	9.1	18.2	9.1	63.6	0
Av. Eastern region	**25.3**	**8.4**	**13.3**	**20.5**	**38.6**	**6**
Northern						
Apac	38.7	16.1	16.1	61.3	45.2	3.2
Lira	44	16	16	44	56	12
Masindi	36.4	18.2	18.2	27.3	36.4	0
Av. Northern region	**40.3**	**16.4**	**16.4**	**49.3**	**47.8**	**6**

Table 4.1 – Distribution of Input Traders Sample (absolute numbers and % by type of trader (in parenthesis))

Region and District	Importer	Wholesaler	Stockist	Total
Central				
Kampala	10 (22%)	7 (16%)	28 (62%)	100%
Luwero	0	0	8 (100%)	100%
Masaka	0	4 (40%)	6 (60%)	100%
Mpigi	0	0	8 (100%)	100%
Mukono	0	0	10 (100%)	100%
Rakai	0	1 (25%)	3 (75%)	100%
Soroti	0	0	2 (100%)	100%
Tot. Central region	**10 (11%)**	**12 (14%)**	**65 (75%)**	**87 (100%)**
East				
Busia	0	0	4 (100%)	4 (100%)
Iganga	0	1 (12.5%)	7 (87.5%)	8 (100%)
Kamuli	0	0	4 (100%)	4 (100%)
Mbale	0	2 (25%)	6 (75%)	8 (100%)
Tororo	0	0	4 (100%)	4 (100%)
Tot. Eastern region	**0**	**3 (11%)**	**25 (89%)**	**28 (100%)**
North				
Apac		0	4 (100%)	4 (100%)
Lira		1 (20%)	4 (80%)	5 (100%)
Masindi		0	10 (100%)	10 (100%)
Tot. Northern region		**1 (5%)**	**18 (95%)**	**19 (100%)**
West				
Kasese		1 (25%)	3 (75%)	4 (100%)
Mbarara		0	10 (100%)	10 (100%)
Tot. Western region		**1 (7%)**	**13 (93%)**	**14 (100%)**

Table 4.2 – Percent of traders that trade in each input

District and region	Seeds	Fertilizer	Agro-chemicals
Central			
Kampala	82.2	84.4	91.1
Luwero	100	100	100
Masaka	80	100	100
Mpigi	100	100	100
Mukono	100	100	100
Rakai	100	100	100
Soroti	100	100	100
Tot. Central region	**88.5**	**92**	**95.4**
East			
Busia	100	75	50
Iganga	100	100	100
Kamuli	100	75	75
Mbale	87.5	87.5	87.5
Tororo	100	50	75
Tot. Eastern region	**96.4**	**82.1**	**82.1**
Northern			
Apac	100	25	25
Lira	100	60	80
Masindi	100	40	90
Tot. Northern region	**100**	**42.1**	**73.7**
Western			
Kasese	100	75	100
Mbarara	100	30	100
Tot. Western region	**100**	**42.9**	**100**

Table 4.3 – Total volume of input traded per average trader (in kilograms)

Region and District	Maize seeds	Bean seeds	Fertilizer
Central			
Kampala	58924	51708	238604
Luwero	3780	2466	8488
Masaka	35284	4183	54021
Mpigi	755	307	2325
Mukono	757	478	1875
Rakai	3902	160	14368
Soroti	190		
Tot. Central region	**32225**	**21843**	**122991**
Eastern			
Busia	2018	52	396
Iganga	7252	3427	10102
Kamuli	1210	50	52
Mbale	30419	40000	173873
Tororo	500	1895	
Tot. Eastern region	**14108**	**7205**	**56655**
Northern			
Apac	203	106	250
Lira	105	150	1207
Masindi	4005	1115	289
Tot. Northern region	**1882**	**401**	**677**
Western			
Kasese	1040	30	12571
Mbarara	1291	260	538
Tot. Western region	**1229**	**222**	**6554**